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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/700,522	11/05/2003	Tommy Hansen	H0610.0355/P355	9436
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DICKSTEIN SHAPIRO LLP 1825 EYE STREET NW Washington, DC 20006-5403			EXAMINER HYUN, PAUL SANG HWA	
			ART UNIT 1743	PAPER NUMBER
			MAIL DATE 05/15/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/700,522

Applicant(s)

HANSEN ET AL.

Examiner

Paul S. Hyun

Art Unit

1743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 February 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

REMARKS

The R.C.E. submitted by Applicants has been acknowledged. Claims 1-5 and 7-10 are currently pending. Applicants amended claims 1 and 7.

Claim Objections

Claims 1 and 7 are objected to because of the following informalities:

The limitation "located in a direction transverse to the inlet channel" recited in claims 1 and 7 is indefinite. It is suggested that the word "located" be changed to "extends" or a word synonymous to "extends".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims **1 and 7** are rejected 35 U.S.C. 103(a) as being unpatentable over Öttele (US 4,160,010) in view of Dunster et al. (US 4,865,820)

Öttele discloses a reactor for conducting chemical reactions (see Figs. 1 and 2). The reactor comprises a reactor shell 12 comprising an inlet and an outlet, a catalyst bed 22, and an impermeable basket in the form of metallic foil 30 that surrounds the sidewalls of the catalyst bed and flanges 34 that extend in a direction transverse to the

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inlet to support the catalyst bed. The foil 30 prevents the sample gas from circumventing the catalyst bed (see claim 1). The reactor disclosed by Öttele differs from the claimed invention in that Öttele does not explicitly disclose that the catalyst bed is designed for partial oxidation of hydrocarbons. Öttele also does not explicitly disclose the method step of partially oxidizing hydrocarbons.

Dunster et al. disclose that reactors for partially oxidizing hydrocarbons are well known in the art (see lines 13-25, col. 1). Such reactors oxidize hydrocarbons to carbon monoxide, carbon dioxide and hydrogen. The products of the partial oxidation can be used as fuel or reactants for the synthesis of more complex compounds. Dunster et al. also disclose the use of a platinum-palladium catalyst for partially oxidizing hydrocarbons (see lines 15-25, col. 4).

In light of the disclosure of Dunster et al., it would have been obvious to one of ordinary skill in the art to substitute the catalyst bed disclosed by Öttele with the catalyst bed disclosed by Dunster et al. so that the reactor can be used to partially oxidize hydrocarbons. It also would have been obvious to conduct a partial oxidation of hydrocarbons using the modified reactor since the reactor is designed to conduct such reactions.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Öttele in view of Dunster et al. as applied to claims 1 and 7, and further in view of Ravault (US 3,895,917).

Neither Öttele nor Dunster et al. disclose a ceramic coating.

Ravault discloses a reactor comprising a catalyst bed wherein the outer walls of the bed are coated with ceramic to render the outer walls impermeable (see claim 2).

In light of the disclosure of Ravault, it would have been obvious to one of ordinary skill in the art to coat the outer walls of the catalyst bed of the modified reactor disclosed by Öttele and Dunster et al. to further ensure that the sample gas does not circumvent the catalyst bed.

Claims **3-5** are rejected under 35 U.S.C. 103(a) as being unpatentable over Öttele in view of Dunster et al. as applied to claims 1 and 7, and further in view of Mentschel (US 4,018,573).

Neither Öttele nor Dunster et al. disclose a heating means to maintain a high reaction temperature inside the reactor.

Mentschel discloses a reactor comprising an electric heater for controlling the temperature of the reaction within the reactor (see lines 20-35, col. 7). In light of the disclosure of Mentschel, it would have been obvious to one of ordinary skill in the art to provide a heater around the foil of the modified reactor disclosed by Öttele and Dunster et al. so that a desired reaction temperature can be maintained within the modified reactor.

Claims **8 and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Öttele in view of Dunster et al. as applied to claims 1 and 7, and further in view of Hahn et al. (US 3,642,447).

Neither Öttele nor Dunster et al. disclose the optimal temperature for partially oxidizing hydrocarbons.

Hahn et al. disclose that hydrocarbons oxidize at 1,000 degrees Celsius (see lines 50-55, col. 1).

In light of the disclosure of Hahn et al. it would have been obvious to one of ordinary skill in the art to conduct the partial oxidation at 1000 degrees Celsius since hydrocarbons oxidize at this temperature.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Öttele in view of Dunster et al. as applied to claims 1 and 7, and further in view of Werges (US 3,929,421).

Neither Öttele nor Dunster et al. disclose a grid.

Werges discloses a reactor comprising a bed of catalyst supported by a grid 63 (see Fig. 7).

In light of the disclosure of Werges, it would have been obvious to one of ordinary skill in the art to provide the modified reactor disclosed by Öttele and Dunster et al. with a grid to provide the modified reactor with a supporting means for the catalyst bed.

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new grounds of rejection. The amendments changed the scope of the claims and therefore, the amendments necessitated new grounds of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul S. Hyun whose telephone number is (571)-272-8559. The examiner can normally be reached on Monday-Friday 8AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571)-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

5/10/07



LYLE A. ALEXANDER
PRIMARY EXAMINER